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San Francisco | 14–18 December 2015

P53E-2170: Preliminary Geological Map of the Ac-H-3 Dantu Quadrangle of Ceres: An Integrated Mapping Study Using *Dawn* Spacecraft Data

ABSTRACT

**Friday, 18 December 2015****13:40 - 18:00***Moscone South - Poster Hall*

We are using Dawn spacecraft data to create a geologic map of the Ac-H-3 Dantu Quadrangle of dwarf planet Ceres. The quadrangle is located between 21-66°N and 90-180°E and includes the following dominant features: 1) the central and northern portion of the 124.6 km diameter impact crater Dantu; 2) crater chains and/or grooves oriented in an east-west direction; 3) a portion of the 84 km diameter impact crater Gaue, whose ejecta blanket covers the SW corner of the quadrangle.


Dantu is a complex impact crater showing terraces, a central pit structure, concentric fractures, and smooth deposits on the crater floor. The materials interpreted to be ejecta deposits of Dantu show low crater frequencies and dominate the southern half of the quadrangle. These deposits appear to be relatively bright and correspond to parts of the #2 high albedo region observed by (1) with the HST indicating different composition and/or material properties than the surroundings. The east-west striking crater chains and grooves are mainly found in the southern half of the quadrangle. They seem to be connected to the crater chains found in Ac-H-4 Ezinu, the neighboring quadrangle to the east, and are potentially related to ballistic ejecta emplacement (see 2). Further work will be focused on Dantu crater and its complex interior and exterior.


The current geologic map is based on Framing Camera (FC) image mosaics derived from Approach (~1.3 km/px) and Survey (~400 m/px) data as well as digital terrain models (DTMs) derived from stereo imagery. In the course of the mission, we will incorporate mosaics from the High Altitude Mapping Orbit (~140 m/px, Fall 2015) and Low Altitude Mapping Orbit (~35 m/px, Spring 2016) phases. We acknowledge the support of the Dawn Instrument, Operations, and Science Teams. This work is partly supported by the German Space Agency (DLR), grant 50 OW 1101.


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